Decimals Decide Olympic Champions!

Brief Overview:

The students will compare and order decimals and expand their knowledge up to the thousandths place. They will understand why decimal places up to the thousandths place can help compare and contrast data. They will demonstrate this idea using manipulatives to represent decimal values as well as organize them on a number line.

NCTM Content Standard/National Science Education Standard:

Number and Operations: understand the place-value structure of the base-ten number system and be able to represent and compare whole numbers and decimals.

Grade/Level:

Grade 4-5

Duration/Length:

3-4 days, 50 minutes per lesson
Final lesson includes summative assessment

Student Outcomes:

Students will:

- Read, write, and represent decimals using symbols, words, or models.
- Compare, order, and describe decimals with or without using <, >, or = symbols.
- Compare and order decimals on a number line.
- Interpret Olympic data using no more than four numbers up to three decimal places; tenths, hundredths, and thousandths.

Materials and Resources:

Lesson 1

- Introductory video entitled Decimals from www.brainpop.com
- Copies of Brainpop paper quiz which is available on website (class set)
- Highlighters (class set)
- Dry Erase Markers
- Computer with internet access connected to an LCD projector
- Scholastic Article "Swimmers, Runners Race To Athens" http://www2.scholastic.com/browse/article.jsp?id+229&FullBreadCrumb=%3Ca+href%3

- Index cards (several packs)
- Overhead projector
- Overhead Base 10 blocks (one teacher set)
- Set of Base 10 blocks (per student group)
- Markers
  - Optional Items – Interactive white board (Example – Interwrite board or Smart Board)
  - For Differentiation – Blackline Masters of Base 10 Blocks

Lesson 2

- Base 10 Blocks (per student group)
- Computer with LCD projector and internet connection
- Stop Watch with that measures seconds to the tenths and hundreths
- Clipboard (1 per group of 5)
- Tape
- Index Cards (several packs)
- Blank hundreds grid (class set)
- Markers
- String/cord (About 3 yards in length)
- Short length of string per group, at least 2 feet.
- Video of Olympic competition from www.nbcolympics.com (See lesson plan for suggestions)
- 8x10 construction paper in two colors (per student group)
- Display size copies (8x 10 should do) of <,>, or = (Teacher resource 10)
- Number line blanks – Teacher Resources 11

Lesson 3

- Base 10 Blocks set (per student group)
- Overhead Base 10 Pieces that include thousands (or you could use Teacher Resource 9 for tenths and hundredths and Teacher Resource 14 for thousandths)
- Chart Paper
- Paper version of Base 10 Blocks (Teacher Resource 8)
- Scissors (class set)
- Differentiation – Computer with internet access
- Manipulative Website http://nlvm.usu.edu/en/nav/vlibrary.html

Development/Procedures:

Lesson 1

Pre-Assessment

BrainPop is an interactive website that includes short video clips and quizzes in all major subject areas. If your school does not subscribe to this site you can receive a free 5 day membership to the site. You can visit the site at

http://brainpop.com. Most of the segments are close captioned for the hearing impaired.

- Download the Decimal Quiz from Brainpop website. Distribute a copy of the Brainpop decimal quiz to each student. Explain to the students that this item will not influence their overall grade. It will be used to determine what our class knows about decimals and what areas we may need to have further developed. After they complete the pre-assessment (it should take 5 minutes or less) have the students highlight their original responses. Collect highlighters before completing the next procedure. This will allow you to assess their background knowledge.
- Using a check list system (Teacher Resource 13) or your grade book observe the students as they are working in their groups. Next to the students name indicate their understanding using the following scale:
  √+ = Independent Understanding
  √ = Some Help Was Required
  √- = Needs opportunity for reteaching
- Students will correct their own papers using their pencils as they watch the BrainPop Decimal video. At the end of the video you will be prompted to click on 3 types of quizzes. Click on the non-graded version of the quiz. This will allow you to go over each answer one at a time with the students.
- Technology Link – If you notice that your students are having difficulty understanding parts of the video clip replay the segment and hit pause on the section that needs clarification. If you have access to an Interwrite or Smart board you can highlight or write additional information on these scenes. If you do not have these devices a similar effect can be attained by projecting on a large white dry erase board.

Launch

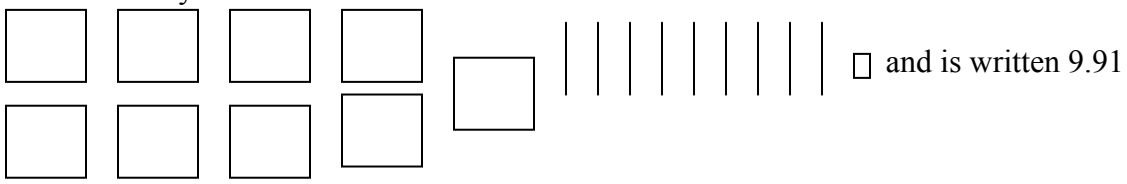
- Place the students in groups of 2 or 3 and distribute the article, "Swimmers, Runners, Race to Athens." Have the groups read the article together. One student should highlight the numbers that they see in the article, while another member writes each highlighted number on separate index cards.
- Have them classify the numbers into two or more piles creating at least two categories with an observable attribute.
- Have the students take their classifications and share them with the class by displaying them on a wall or on a piece of chart paper.
- Have the students take a gallery walk examining the other groups' work. After the gallery walk pose these questions: 1) What do the numbers in each group have in common? 2) Why did you classify the numbers the way you did? 3) Were there any responses from the other groups that surprised you?

Teacher Facilitation/Student Application

- Draw attention to the groups that had the numbers with decimals in their own category. Ask the groups to explain why they placed these numbers together. What did these numbers represent? (*The time 3 men finished the 100 meter*

dash) Why do you think they needed to use decimals to measure this instead of using whole numbers? *(Possible answer – the runners were so close to each other that they needed a better or more precise way of measuring time. If they used whole seconds it would look like a tie.)*

- Distribute Base 10 blocks to the students. Review the base 10 blocks with the students by an example of a flat, a long, and unit. Many students refer to the blocks as hundreds, tens and ones. From this point encourage all students to call them flats, longs, and units or their decimal equivalent. Explain that the flat is going to represent one second. (Write one second using an overhead marker on the flat). Have the students set one flat from their base ten blocks in front of them. Using the think aloud strategy, say, "I wonder how many of these longs it will take to cover my flat?" Allow the students to interact with the base 10 pieces to find that there are 10 longs on one flat and write 10/10 = 1 on the overhead. Ask if 10 of the longs is 10/10 or one whole second. How much do you think one long is worth? (*One tenth*). Write 1/10. Ask the students if they remember any other way one tenth can be written? If they do not remember, indicate that 1/10 = .1 Review this skill a few times by covering your original flat with overhead longs in a variety of ways and calling on students to indicate how many tenths are covering the flat. (*Example .8, .4, and .2*)
- Use the same procedure similar to the prior step to review hundredths. Have the students identify the following numbers (.03, .07, and .09) with their manipulatives. The teacher should clarify their responses as needed. Have the students see that .09 is only one hundredth away from being a tenth.
- Revisit the numbers that were used in the previous two steps. Have the students review how to read each of the tenths and the hundredths digits.
- Refer back to the results of the race. (Example 9.91 seconds) Review how to read the decimals with the students. 9 . 9 1 is nine and ninety one hundredths.
- Be sure the students understand that the hundredths are smaller than tenths.
- Use the blocks to create the number 9.91. Show them that the 9 flats, nine longs, and one unit can be recorded on a piece of paper using the following symbols:



- Encourage the students in their groups to represent the other decimals in the article (9.92, and 9.93) using their blocks and represent them on Student Resource 3. The students will share their answers on the overhead.
- Allow the students to practice again in groups using the same procedure for the following numbers.

Pole Vault Records

World Record – 6.14 m ***Olympic Record – 5.95 m*** ***American Record – 6.03 m***

- Walk around the room and observe students work.

Embedded Assessment

Students should work independently on Student Resource 3. Collect the work to determine student understanding. Answer key can be found on Teacher Resource 3.

Reteaching/Extension

Represent the decimals by cutting out picture representations of the base 10 blocks using black line masters (*Teacher Resource 8*) and cutting them and pasting them on the recording sheet,

Lesson 2

Pre-Assessment

- Divide the students into groups of 2-3. Provide each group of students a copy of Student Resource 4, "Decimal Distractions". Allow the student to identify the value of the decimals using base 10 blocks to represent them on the page.
- Using a check list system (Teacher Resource 13), observe the students as they are working in their groups. Next to the students name indicate their understanding using the following scale:
  - √+ = Independent Understanding
  - √ = Some Help Was Required
  - √- = Needs opportunity for reteaching
- You may want to ask the following questions to help determine the students level of understanding.
  1) How did you know how many tenths you would need to represent your number?
  2) Why do you have ____ hundredths on your picture?
  3) For 7.70 hundredths why don't you have 70 hundredths pieces on your sheet? Would that be wrong if a person did?

Launch

- Show Olympic Track or Swimming Clips. It is best to choose one that displays the results at the end or at least has 3 numbers to compare included in the clip. See nbcolympics.org. The following are possible examples that you may choose to use:

Headline: Lolo Jones: 60m hurdles at the 2008 Indoor Worlds

http://www.nbcolympics.com/video/share.html?videoid=0e48a238-f2ec-4d7c-b4d2-7199769d4c91

Headline: Track Trials: Gay's 9.68 in 100m

http://www.nbcolympics.com/video/share.html?videoid=57f33171-c792-41d6-a8d8-89011c5c9581

Headline: Swimming Trials: Men's 200m back final

http://www.nbcolympics.com/video/share.html?videoid=645afdb8-a01e-4c33-b185-b8e240e791c1

Headline: Swimming Trials: Women's 100m free final

http://www.nbcolympics.com/video/share.html?videoid=bef0b798-5246-4baf-b11a-673a7308cda8

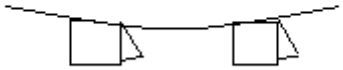
- Use your selected clip to frame discussion:
- Who won? How do you know? (Sample answer: The athlete got to the end first) Encourage the students to see that the athlete finished the required distance in the shortest time.

Teacher Facilitation/Student Application

- Use base 10 blocks to show times – Example – These are the results of the Mens 100 meter race - 9.55 sec, 9.87 sec, 9.16 sec and 9.30 seconds. Write these numbers or draw the symbols on 8x10 construction paper.
- Distribute these numbers to student volunteers in the class. Place the copies of the <,>, and = signs on the board or in a pocket chart. Ask the students holding the 9.16 sign to stand up and the 9.55 to stand up to represent this problem:

  9.16 _____ 9.55
- Ask a student to look at the greater than, less than, or equal to sign to complete the inequality. Continue this activity using a variety of combinations of the number signs.
- Transfer data to number line – Have two student volunteers hold a string on either end. On one end of the string hang a card or sign that says 9.0 and on the other end of the display a card that says 10.0.

Example: Number Line



- Distribute 9 pieces of 8x10 construction paper (These papers should all be the same color) that display the numbers 9.1-9.9. Have the students draw the symbols that would represent the decimal. These students should share the picture with their groups to make sure they agree that it is correct.
- These students should pass the paper on to another child in the classroom that did not get to draw on the paper. The students should allow the other children around them to look at their number and discuss where the numbers could be placed.
- Call these students up one at a time in order to determine where they should be placed on the number line. You may want to start with the child who has 9.5. Remind the students that they may use the base 10 blocks to help them determine their placement on the number line.
- Possible questions to help them with the processes:
- Where is the most accurate position for 9.5? Why do you think that this number should be placed in this location? Do we all agree? How can you prove that this is where the number belongs?
- Why did you place _____ in that location?
- Is there anyone who disagrees with any placement of the cards so far? What adaptations should we make to the line? Why do you think this change should be made?
- Use the Think Aloud Strategy for placing the first card on the number line. *"I have 9.55? I wonder where that should go? Let me look at the picture that I drew. Looking at the pictures that are already on the number line I think that it should go between 9.5 and 9.6 because it looks like it is more than 9.5 but less then 9.6."*
- Allow students to place the other cards on the line. Make sure that they explain why they placed it in a location using place value terminology. Have the students comment whether they agree that it should be in that location or if it should be moved and complete the line.
- Have the students look at the numbers and picture representations from their pre-assessment activity. Have the students use their knowledge of place value and to place put these numbers in order.
- The students will now attempt to put the pre-assessment numbers on a number line. Provide each group with a smaller version of the class number line with the appropriate adaptations (ex. The students should have a card hanging that has 7.0 on one end and 8.0 on the other end). Have the student groups hang the cards in the locations that they feel they belong.
- Display the number lines around the room and have the students compare and contrast their lines with other groups' work.

- If a student disagrees with another group's line or has any suggestions, allow the student to make adaptations if they are able to justify the need for the change using his/her knowledge of place value and the correct terms.
- After the students and teacher agree on the appropriate placing of the numbers on the line tell the students that they will be going outside for their first Olympic event.

- Students will be divided into groups of 5. Each group will consist of a timer and four runners. The timer will be in charge of using the stop watch.
- The students will run a brief race around 2 cones that are 50 yards apart. The timer and the students will record their time on their recording sheets (Student Resource 5).

Embedded Assessment

- Students will switch their results with another group. They will reconstruct their number line using the data they received from their peers. After all the groups have finished, the students can walk to each group to see if they agree with the way the data was placed on the line.

Reteaching/Extension

- Extension – Students can use scrap paper or math journals to answer this question. *"In a race the times are measured to the hundredths of a second. The winner's time is 12.52 seconds. What might the times of the other eight runners be? "*

- Reteach: Then allow the students to use the base 10 blocks again to have a tangible representation of why one time is greater than another while they are completing the assessment.

Lesson 3

Pre-Assessment

- Make sure that the students understand the <, > and = symbols by placing the inequalities listed below on the chalk board. Have students give answers. Leave the correct form of these inequaltities on the board as they complete the pre-assessment so that they will not forget how to use the symbols.

11 _____ 15 60.00 _____ 60 100.0 _____ 25

- Distribute "Comparing Decimals! The Road to Beijing" (Student Resource Sheet 6) to the students. Have the students complete this independently. Answer key can be found on Teacher Resource 6.
- Go over the answers using manipulatives or picture representations of the base 10 blocks to justify why answers were correct. If there is time this should be done by the students.

Launch

- Share the following scenario to the students:

“I was looking at the final scores of the Olympic Men’s Gymnastics results when something strange happened. I want to see if you notice it, too.”

- Display the following chart to the students:

2004 Horizontal Bar Competition of the 2004 Olympics

Gymnast	*Points Earned*	*Medal Earned*
Igor Cassina – ITA	***9.81***	***Gold***
Paul Hamm - USA	***9.81***	***Silver***
Isao Yoneda – JAP	***9.78***	***Bronze***

- What do you notice about the data? (Paul Hamm and Igor Cassina both earned a 9.81 yet one of them earned a gold medal and one earned a silver.)
- Explain to the students that it is very rare that two gold medals are given in a single event. There must have been a way that the Olympic officials determined a winner. How do you think that they did it?
- List ideas on the board.
- Explain that one way that the gymnastics officials tried to break the tie was to use the thousandths place.

Teacher Facilitation/Student Application

- Use paper versions of the base 10 blocks – (Teacher Resource 8) and have them cut the blocks that represent the decimal 9.81
- Using the paper copies (and the base 10 block manipulatives if necessary) remind the students that our number system is based on the number 10. Have the students once again show that one whole flat can be covered with 10 longs and 1 long can be covered with 10 units.
- Ask the students what they think they have to do to create a base 10 block that represents a thousandth? Should it be bigger or smaller then a long? What about a unit? How do you know?
- Students should determine that in order to see what a thousandth piece should look like they need to break the hundredth unit down into 10 pieces.
- Allow the students to take a pair of scissors and see if they can cut a unit square or hundredths piece into 10 pieces. (Tell the students that it is okay if they are not able to accomplish this and that the point of the exercise is to show them that a thousandth is a very small value!)
- Show the students the transparent decimal squares so they can see a thousandth. Place the red square from the Transparent Decimal Squares SR-0881 on the board. Explain to them that this represents one whole. In this case it can be one whole point that Paul Hamm and Igor Cassina earned. It is currently cut into how many pieces? (10) So each of the individual places sections will equal one tenth.
- Have the students then use the overhead pieces to show the 9 wholes and 8 tenths of Hamms and Cassina's score.
- Show the students the hundredth representation using the green overhead squares from the Decimal Squares. Ask a student volunteer to find the decimal square that would represent digit 1 in the athletes score 9.81. Check the students work.

- Using the overhead, show students the amount for the thousandths place. Inform the students that it is very small and lay it on top of the original red square and the green hundredths square so that they can see the relationship between tenths, hundredths, and thousandths..
- Explain to the students that the Olympic officials reviewed the tapes of Paul and Igor's routines and rescored them again. They then took the point values down to the thousandth and found that Igor's routine was better by .003. Show the students the overhead square of the thousandths and shade in 3 spaces.
- Discuss this idea with the students. How would you feel if you were Paul? How would you feel if you were Igor? Make sure that they use the place value terminology in their explanation.

Embedded Assessment

- Students will complete Student Resource 7, "Who Gets the Gold?" independently.
- Have the students switch papers and go over the page as a class using the answers from Teacher Resource 7. You may want this page on an overhead.

Reteaching/Extension

- Reteach – Students who continue to have difficulty with this concept may find it helpful to try the activities again using online manipulatives that represent the thousandths place. One such site is http://nlvm.usu.edu/en/nav/vlibrary.html
- Extension. – Use the same site shown above to show the students a different way of modeling the decimals to the thousandths place as well as encouraging the students to add decimals using manipulatives.

** The summative assessment can be administered today if you have time and you feel that your students are ready. If not it can be given on the following day. You know your students best. Set them up to be successful!**

Summative Assessment:

Distribute copies of Student Resource 1 and Student Resource 2 (This is an ECR). Allow the students to complete this independently. It is designed to determine the student's understanding of decimals including comparing and ordering decimals correctly. They will also justify their ideas using mathematical thinking that demonstrates their knowledge of place value.

Please use the scoring guides provided on Teacher Resource 1 and Teacher Resource 2.

Use the results of this assessment to determine if further teaching of this topic is necessary for the whole group, and/or create reteach groups for students who are displaying difficulty on a skill.

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Decimals Assessment

Name _____ Date _____

Directions: Compare each set of decimals using <,>, or =.

4.6 ◯ 6.4 35.01 ◯ 35.1 8.75 ◯ 8.57

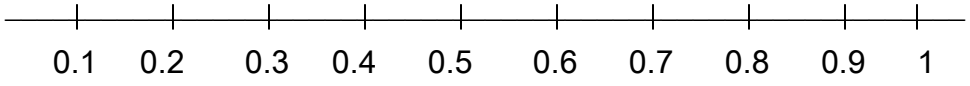
0.329 ◯ 0.293 95.631 ◯ 97.428 100.8 ◯ 100.088

Directions: Write the decimals in order from least to greatest on the line below.

5.142 *5.039* *5.214* *5. 309*

Directions: Place the following decimals on the number line below.

0.47 *0.13* *0.27* *0.75*



Student Resource 2

News Flash: Gold Medalist yet to be Determined!

There is a disagreement among four of the words top swimmers. They all believe that they won the gold medal in the men's' 100 meter freestyle. The chart below shows the athlete's swim times.

Athlete	***Completion Time in Seconds***
Michael Phelps - USA	***58.112***
Ian Thorpe - AUS	***58.121***
Tomomi Morita – JPN	***58.211***
Stephen Perry - GRB	***58.122***

Part A: *List the completion times in order from least to greatest.*

_____

Part B

- *Use what you know about decimals to explain how you determined your answer. Use symbols, words, and/or numbers in your explanation.*

- *The Olympic officials realized that that swimmer 5's timer was broken. Based on the video footage she completed her race in 58.012 seconds. Does this affect the results? Explain why or why not. Use symbols, words, and/or numbers in your explanation.*

_____

_____

_____

_____

_____

Representin'

Name _____ Date _____

Directions: Listed below are the records of the Olympic High Jump event. **Represent** your decimals using the following notation.

Flat = ☐ Long/Rod = | Unit/Ones = □

RECORD *REPRESENTATION*

World Record: 2.45 meters

Olympic Record: 2.39 meters

American Record: 2.4 meters

Decimal Distractions!

Directions: These decimals are the final distances (in meters) for the women's long jump qualifying event for the American Olympic Team. How would you represent each one of these decimals? With your group decide what each decimal would look like using the base ten blocks and record them below. When you have finished your representations cut out each one so that you have four decimal cards.

7.07

7.70

7.73

7.37

Get to Steppin'!

Directions: *Complete the following information as a team and record the results of your race.* ☺

Team Information:

Group Members: _____

Who is the timekeeper? _____

Who are the racers? _____

Race Information:

Runner's Name	***Time in Seconds***

Comparing Decimals!
The Road to Beijing

Name _____ Date _____

Directions: The Olympic trials often end in a very tight race!! The pairs of athletes listed below are trying to decide the winner. Examine the times below and place the <, >, or = symbols in the circle between each set of numbers. Next, determine the winner!

Swimmer A ***9.32 seconds***

Swimmer B ***9.23 seconds***

9.32 ◯ 9.23 Winner: _____

Runner A ***45.09 seconds***

Runner B ***45.9 seconds***

45.09 ◯ 45.9 Winner: _____

Jumper A ***5.83 meters***

Jumper B ***5.9 meters***

5.83 ◯ 5.9 Winner: _____

Make up your own scenario! Write your own data using decimals and determine the winner of your favorite Olympic event! Complete the information below.

_____ ***A***

_____ ***B***

_____ ◯ _____ Winner: _____

Who Gets the Gold?

Directions: The craziest thing happened during the 100 meter backstroke race! The first three swimmers finished the race in 54.73 seconds! The judges decided to add the thousandths place to determine a winner and be even more precise. List the swimmers in order from fastest time to slowest time and decide which medal each swimmer should earn.

Swimmer	*Time – in seconds*
Aaron Piersol (USA)	***54.733***
Markus Rogan (AUS)	***54.737***
Razvan Florea (ROM)	***54.731***

GOLD: _____

SILVER: _____

BRONZE: _____

A similar situation happened at the women's 100 meter butterfly. Decide which medal each swimmer should earn based on the data below.

Swimmer	*Time – in seconds*
Otylia Jedrzejczak (POL)	***57.197***
Petria Thomas (AUS)	***57.190***
Yuko Nakanishi (JPN)	***57.199***

GOLD: _____

SILVER: _____

BRONZE: _____

Decimals Assessment

Directions: Compare each set of decimals using <,>, or =.

4.6 ___<____ 6.4 35.01 ___<____ 35.1 8.75 ____>____ 8.57

0.329 ___>___ 0.293 95.631 ___<__ 97.428 100.8 ___>__ 100.088

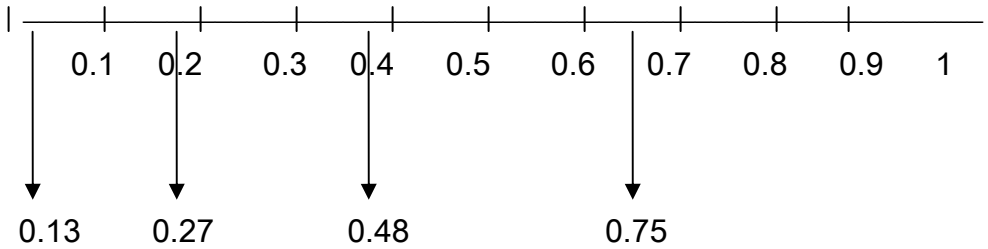
Directions: Write the decimals in order from least to greatest on the line below.

5.142 *5.039* *5.214* *5. 309*

Answer: 5.039, 5.142, 5.214, 5.309

Directions: Place the following decimals on the number line below.

0.48 *0.13* *0.27* *0.75*



News Flash: Gold Medalist yet to be Determined!

There is a disagreement among four of the words top swimmers. They all believe that they won the gold medal in the men's' 100 meter freestyle. The chart below shows the athlete's swim times.

Athlete	***Completion Time in Seconds***
Michael Phelps - USA	***58.112***
Ian Thorpe - AUS	***58.121***
Tomomi Morita – JAP	***58.211***
Stephen Perry - GRB	***58.122***

Part A: *List the completion times in order from least to greatest.*

58.112 (Phelps), 58.121 (Thorpe), 58.122 (Perry), 58.211 (Morita)

If students only list names encourage them to go back and list decimal values

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Part B

- *Use what you know about decimals to explain how you determined your answer. Use symbols, words, and/or numbers in your explanation.*

- *The Olympic officials realized that that swimmer 5's timer was broken. Based on the video footage she completed her race in 58.012 seconds. Does this affect the results? Explain why or why not. Use symbols, words, and/or numbers in your explanation.*

*** Students must demonstrate a knowledge and understanding of place value; tenths, hundredths, and thousandths. They should be able to clearly explain that the placement of the digits in the numbers affects the value and outcome.*

- *Uses appropriate vocabulary; whole number, tenths, hundredths, thousandths*

*** Students should indicate that the last value, 58.012 will affect the rest of the data. Given this additional value it would be the fastest time and would be the winner of the race. By virtue of the zero in the tenths place the final outcome is indeed affected.*

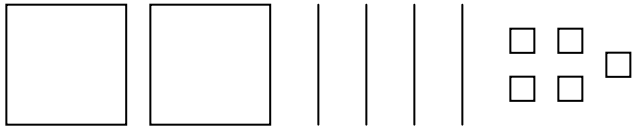
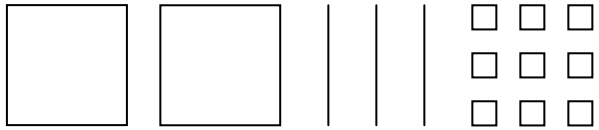
- *Indicate the zero in the tenths place makes the shortest time*

Representin'

Name _____ Date _____

Directions: Listed below are the records of the Olympic High Jump event. **Represent** your decimals using the following notation.

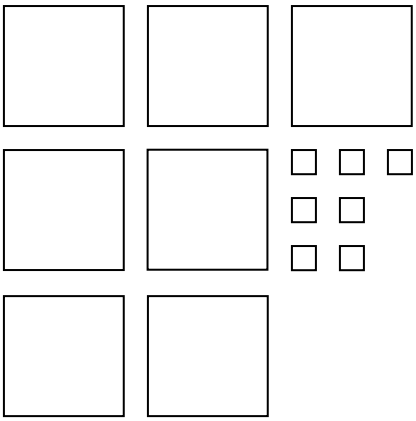
Flat = ☐ Long/Rod = | Unit/Ones = ☐

RECORD	*REPRESENTATION*
World Record: 2.45 meters	
Olympic Record: 2.39 meters	
American Record: 2.4 meters	

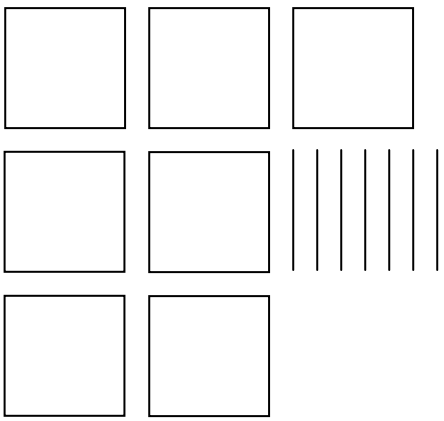
Decimal Distractions!

Directions: These decimals are the final distances (in meters) for the women's long jump qualifying event for the American Olympic Team. How would you represent each one of these decimals? With your group decide what each decimal would look like using the base ten blocks and record them below. When you have finished your representations cut out each one so that you have four decimal cards.

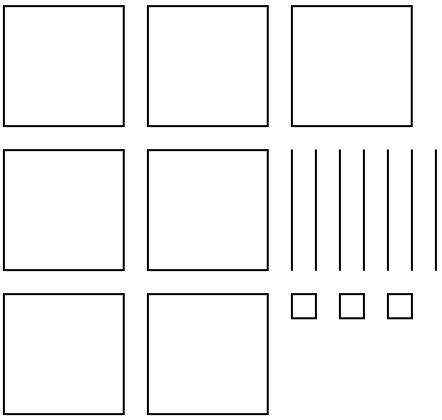
7.07



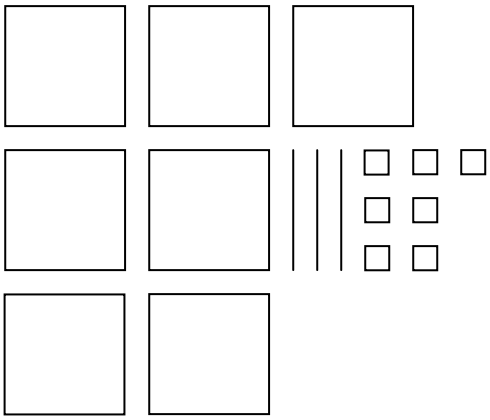
7.70



7.73



7.37



Comparing Decimals!
The Road to Beijing

Name _____ Date _____

Directions: The Olympic trials often end in a very tight race!! The pairs of athletes listed below are trying to decide the winner. Examine the times below and place the <, >, or = symbols in the circle between each set of numbers. Next, determine the winner!

Swimmer A ***9.32 seconds***

Swimmer B ***9.23 seconds***

9.32 > 9.23 Winner: Swimmer B

Runner A ***45.09 seconds***

Runner B ***45.9 seconds***

45.09 < 45.9 Winner: Runner A

Jumper A ***5.83 meters***

Jumper B ***5.9 meters***

5.83 < 5.9 Winner: Jumper A

***Make sure students are careful here! Winning a race means the **smallest** time wins while winning the long jump means the **largest** distance! ***

Make up your own scenario! Write your own data using decimals and determine the winner of your favorite Olympic event! Complete the information below.

_____ ***A***

_____ ***B***

_____ ◯ _____ Winner: _____

Who Gets the Gold?

Directions: The craziest thing happened during the 100 meter backstroke race! The first three swimmers finished the race in 54.73 seconds! The judges decided to add the thousandths place to determine a winner and be even more precise. List the swimmers in order from fastest time to slowest time and decide which medal each swimmer should earn.

Swimmer	*Time – in seconds*
Aaron Piersol (USA)	***54.733***
Markus Rogan (AUS)	***54.737***
Razvan Florea (ROM)	***54.731***

GOLD: Razvan Florea

SILVER: Aaron Piersol

BRONZE: Markus Rogan

A similar situation happened at the women's 100 meter butterfly. Decide which medal each swimmer should earn based on the data below.

Swimmer	*Time – in seconds*
Otylia Jedrzejczak (POL)	***57.197***
Petria Thomas (AUS)	***57.190***
Yuko Nakanishi (JPN)	***57.199***

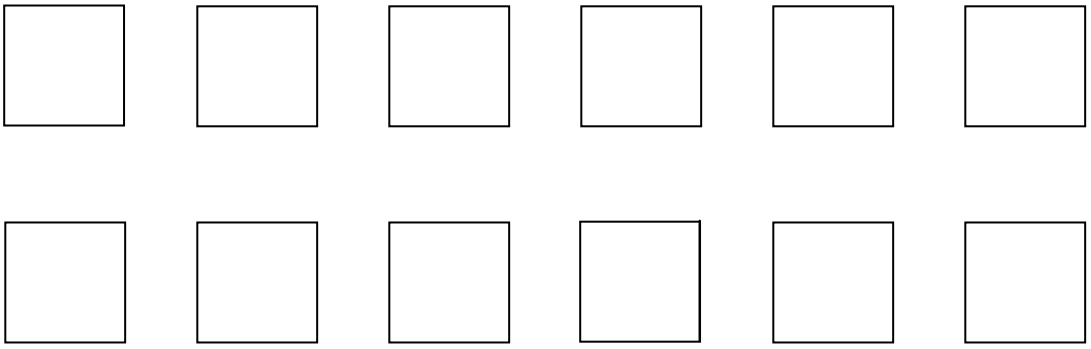
GOLD: Petria Thomas

SILVER: Otylia Jedrzejczak

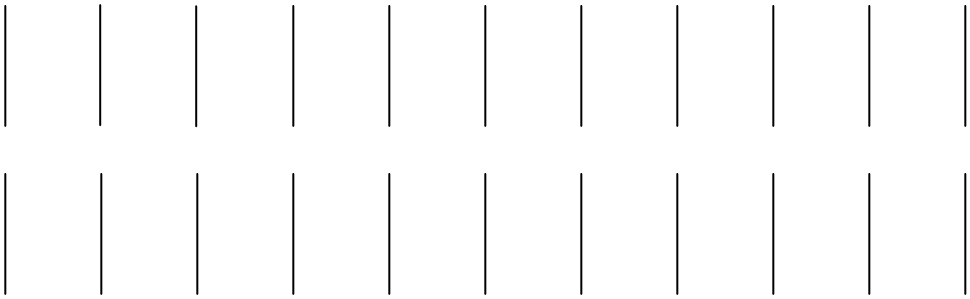
BRONZE: Yuko Nakanishi

Blackline Masters
Quick Notation for Decimal Representation

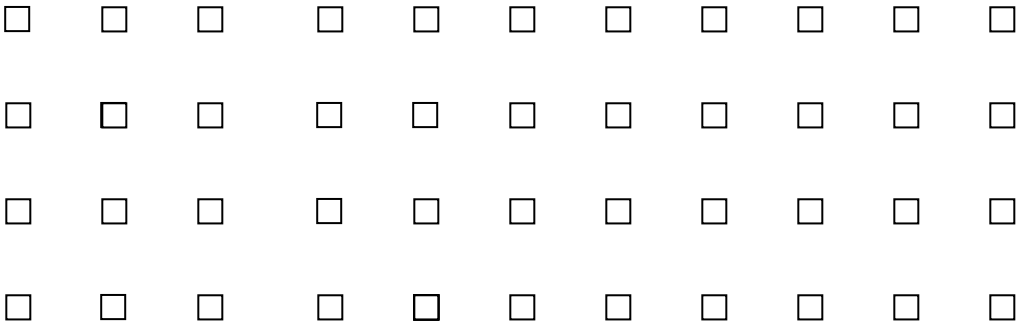
Flats (whole numbers)



Rods/Longs (tenths)

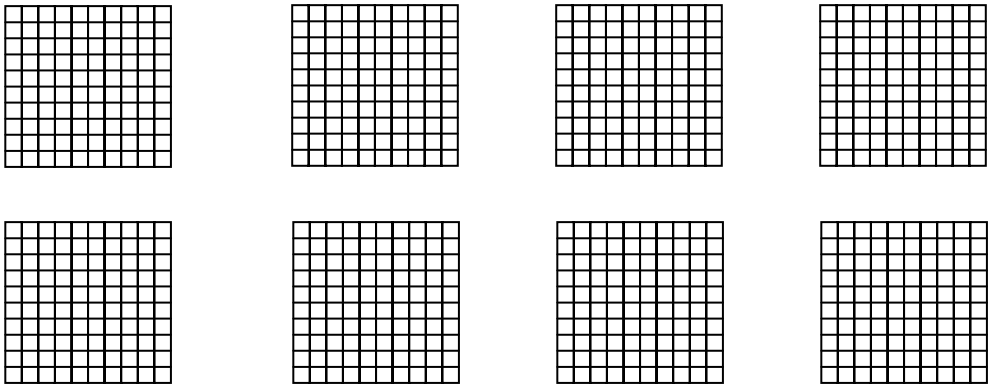


Units (hundredths)

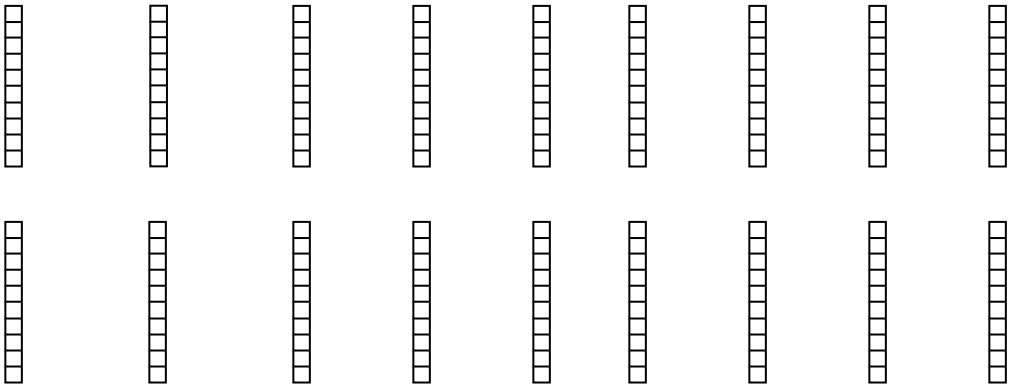


Blackline Masters
Notation for Decimal Representation

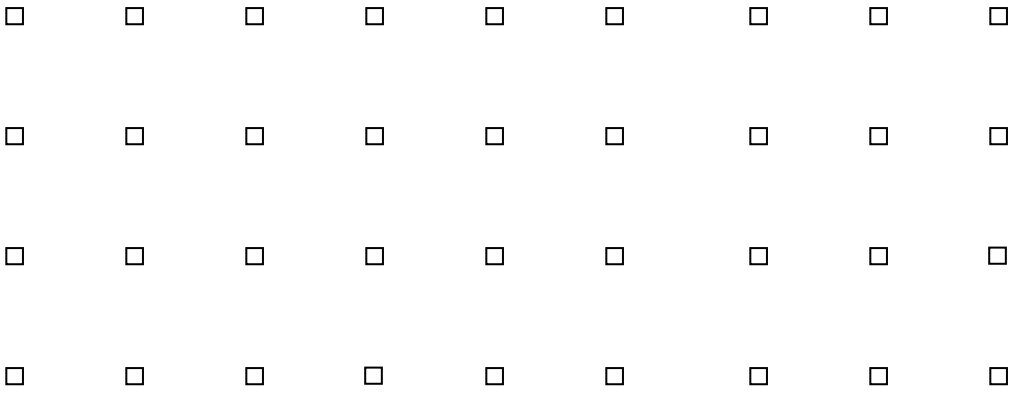
Flats (whole numbers)

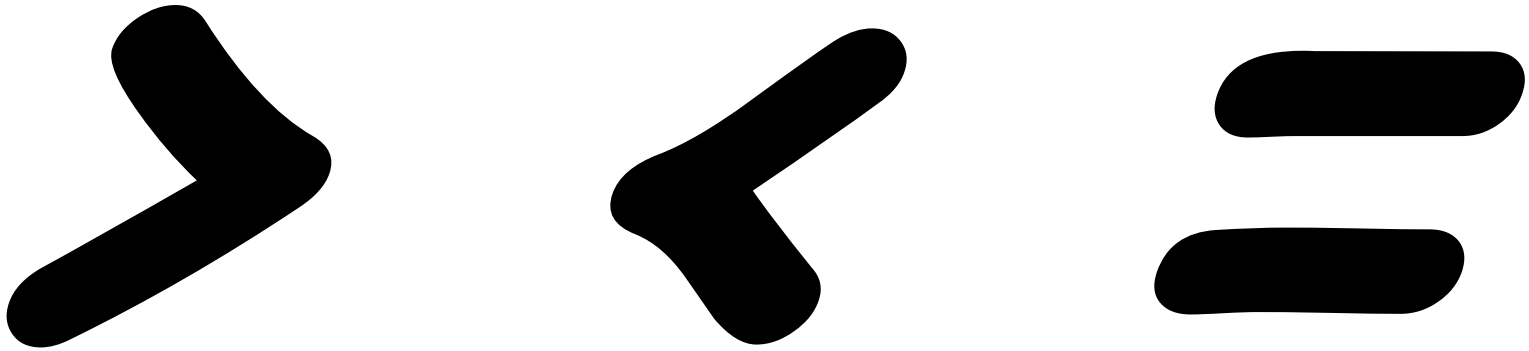


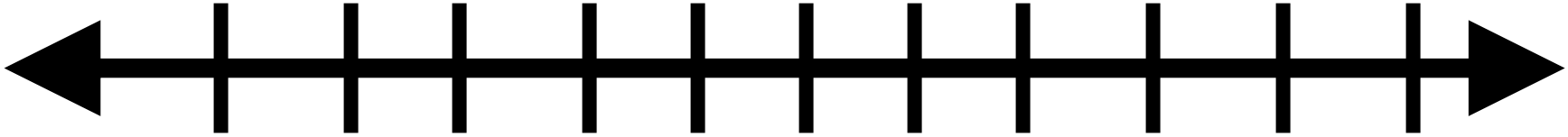
Rods/Longs (tenths)

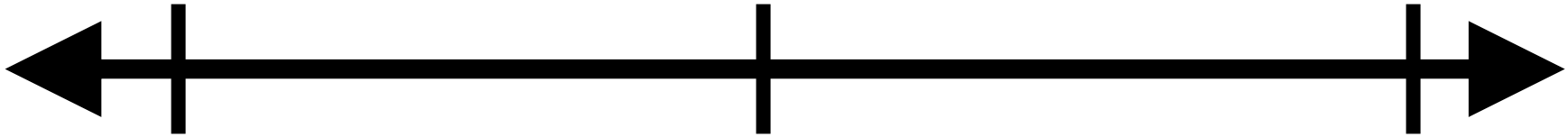


Units (hundredths)



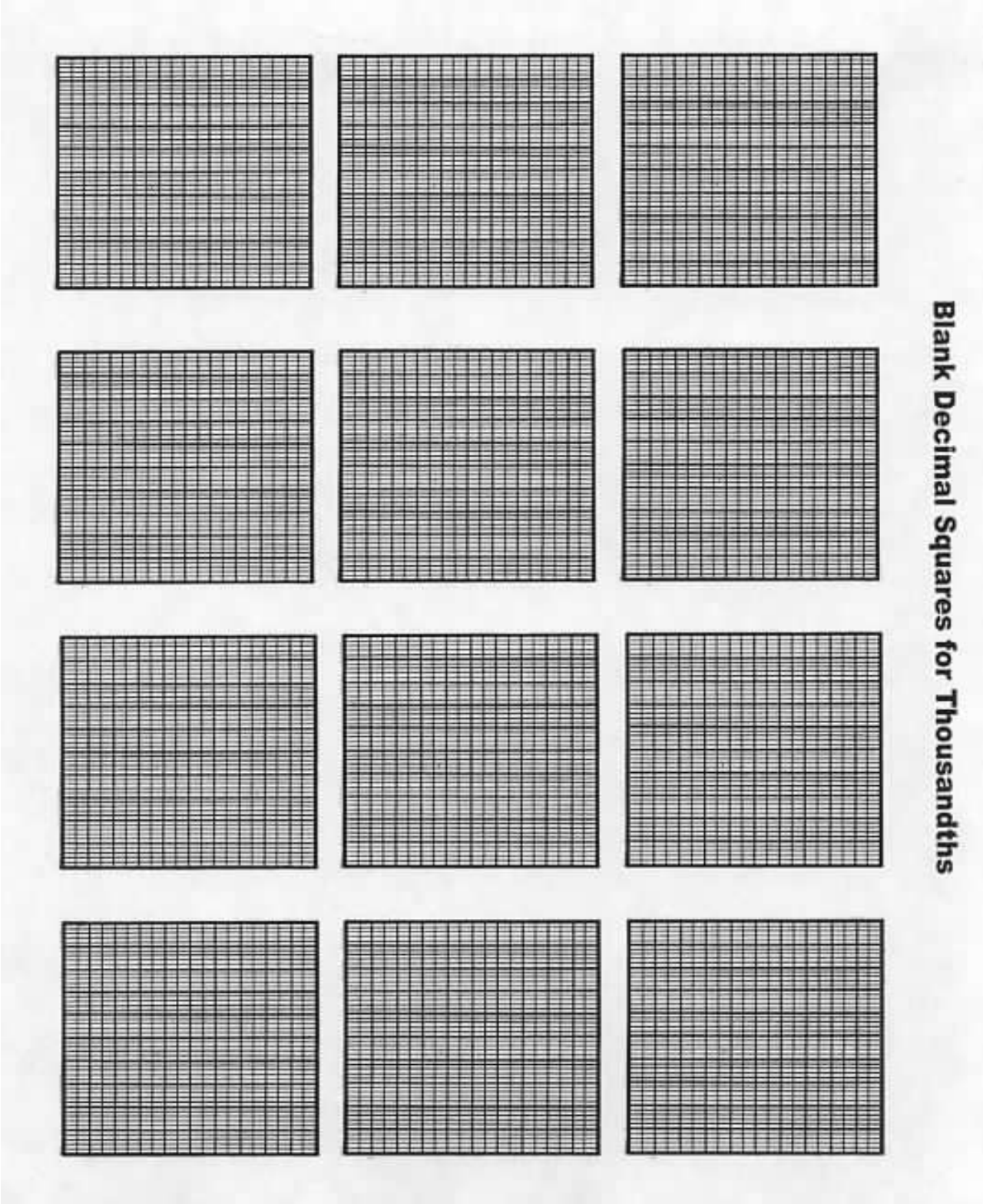






Teacher Checklist

Student Name	*Day 1: Video/Basic Place Value*	*Day 2: Decimal Preassessment*


Blank Decimal Squares for Thousandths